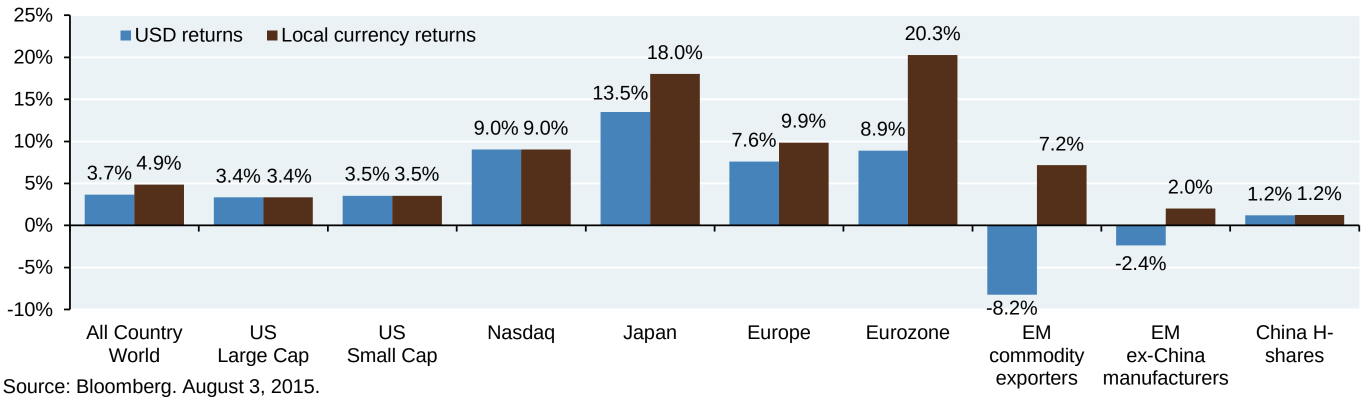
Topics: Equity markets in the US, Europe, Japan and China; the proposed Iran deal; and our bi-annual look at the private equity industry

With US GDP and earnings growth stalling, US equities have stalled as well. Q2 GDP growth came in at just 2.3%, and Q2 S&P profits are projected to fall by 2.5%-3.5% vs. last year. There are silver linings if you are inclined to look for them: on growth, consumer spending is holding up close to 3%, housing continues to recover with room to run given the gap between permits/starts and household formation, and labor income is rising at ~4%. On earnings, Q2 S&P 500 profits will probably be up 5%-7% ex-energy. However, after factoring in the latest revisions, US real GDP growth has averaged just 2.1% since this expansion began, most recently due to weakness in business spending. This raises questions about growth and productivity trends. And no matter how you slice it, 5%-7% earnings growth is not the basis for projecting higher P/E multiples vs. today's above-average levels. The breadth of the market is also falling, since the market-cap weighted S&P is outperforming its equal weighted counterpart by a growing margin.

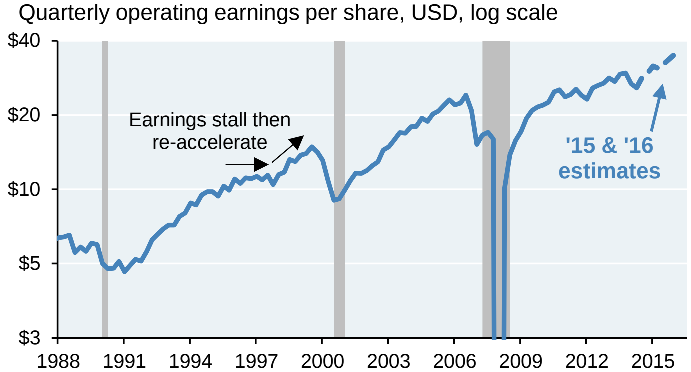
YTD total returns on major equity markets/regions
Percent



Source: Bloomberg. August 3, 2015.

The big question for US equities: can earnings rebound after stalling, as they did in the mid 1990's. This time, drags have resulted from the rising dollar, the collapse in oil prices and slow growth overseas (35%-40% of S&P sales come from abroad). It looks as if the first two factors will be less of an issue next year, but the third may still be, and the Fed will be raising rates. All things considered, I believe we will see S&P earnings growth in 2016, but consensus estimates of 14.6% for next year look too high. Keep in mind that US earnings are likely being inflated by inorganic growth related to stock buybacks and M&A transactions. As shown below (right), M&A and buybacks have matched their 2007 peak as a % of corporate cash flow, and are probably boosting earnings growth by 2%-3% per year.

S&P 500 operating earnings per share
Quarterly operating earnings per share, USD, log scale



Source: Standard & Poor's. July 2015. Grey bars denote recessions.

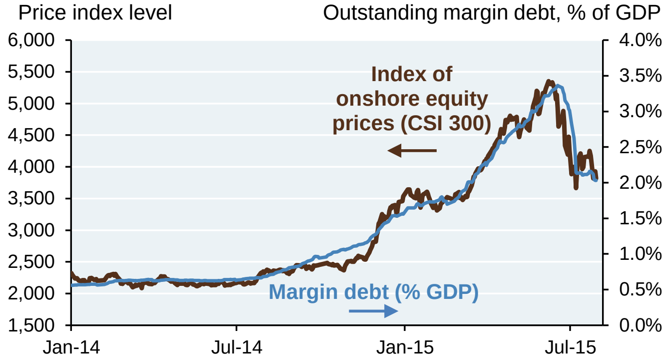
US S&P 500 M&A transactions and buybacks
% of earnings before interest, taxes and intangibles, 12-mo. avg.

Source: J.P. Morgan Securities LLC, Bloomberg. Q1 2015.

The stalwarts of the equity markets this year have been Europe and Japan, where Central Banks and other government-sponsored entities have been buying government, corporate, asset-backed and agency bonds and equities (Japan) to **unprecedented degrees**. It's not possible to disaggregate the impact of these steps and estimate what Japanese and European equity returns would have been without them. It suffices to say that such steps are the reason for positive returns this year in globally diversified equity portfolios. In **Europe**, inflation is below targets, and leading indicators, employment, retail sales, confidence, earnings revisions and bank lending are improving, which we covered in an April 1 EoTM. In **Japan**, there are fewer improving economic signals (rising labor income is the only one I can see), but for investors, **Japanese companies are finally disgorging their massive cash holdings.** While the Topix return on equity is still among the lowest in the developed world, earnings growth is picking up.

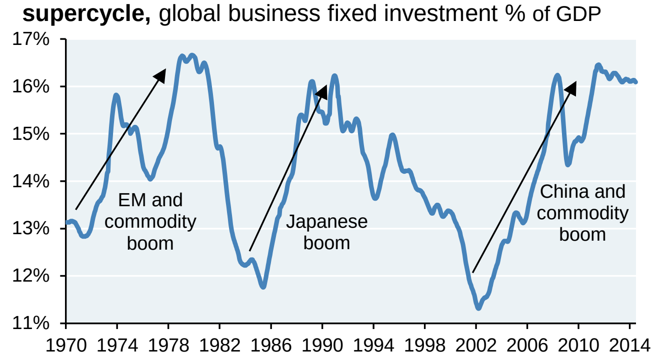
The other trend: negative returns on Emerging Markets. We discussed our cautious views on EM in our 2015 Outlook, and how they were affected by **The China Syndrome**: the long-anticipated decline in fixed investment, growth, housing, corporate profits, etc., much of which is related to the end of China's commodity and capital spending boom. There was a bizarre surge in Shenzhen and Shanghai equity markets earlier this year that spawned a cottage industry of analysts trying to retrofit an explanation for why Chinese equity markets should be rising when everything else around them was falling. In an **April 23 EoTM**, I compared such contortions to those of Chinese gymnasts. Well, now we know the answer: **Yes, Virginia, it was all about margin debt.** The rest of the issues were just noise.

China: margin debt vs. onshore equity prices



Source: Chinese national statistics offices, Bloomberg. July 30, 2015.

The end of the China/commodity capital spending supercycle, global business fixed investment % of GDP

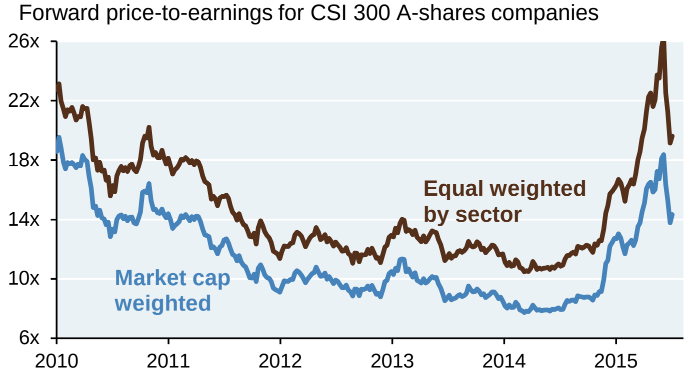


Source: Bridgewater Associates. June 2015.

I'm not sorry to see such a reversal in Chinese equities. I read a lot of commentary in the spring along the lines of "*Chinese equities are going up since the government wants them to*", accompanied by assertions that such gains were meant to compensate owners of state-owned enterprises disenfranchised by Xi's structural reform program. Even in this crazy era of Central Bank intervention, I don't think equity markets conform to a single-factor model based on government wishes. Chinese economic and profit fundamentals are weak, and it makes sense that Chinese equity valuations are falling and not rising. The charts below suggest that onshore Chinese equities are still not that cheap, by the way.

China: onshore equity P/E multiples

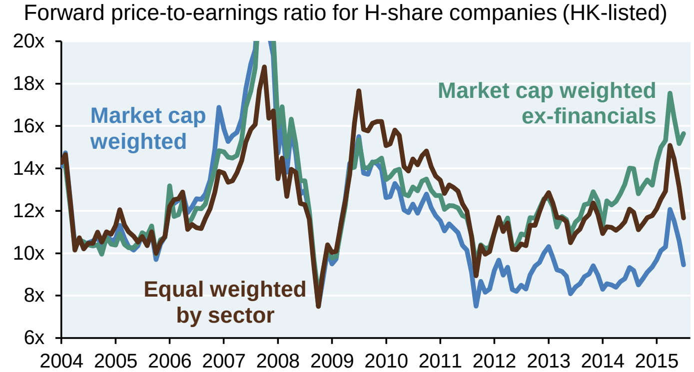
Forward price-to-earnings for CSI 300 A-shares companies



Source: Bloomberg. July 31, 2015.

China: offshore equity P/E multiples

Forward price-to-earnings ratio for H-share companies (HK-listed)



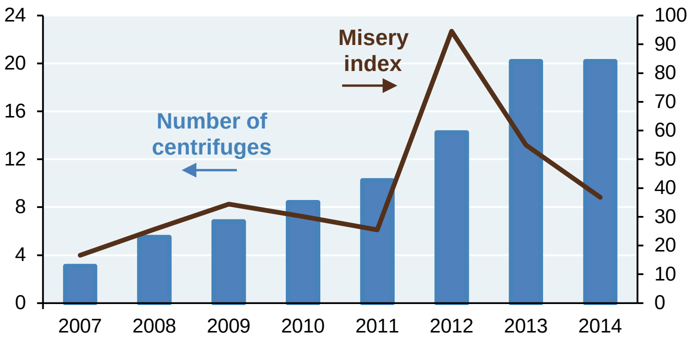
Source: MSCI. July 31, 2015.

The proposed deal with Iran: sanctions lifted in exchange for nuclear oversight

I can understand the impetus for a deal with Iran. Sanctions drove up Iran's misery index, but did not dissuade Iran from building more centrifuges, nor did it promote sustained domestic agitation against the government. By 2013, Iran's centrifuges, if dedicated full time to producing 90% highly enriched uranium, could on paper produce enough for around 4 nuclear weapons per year. If the real goal of economic sanctions was regime change, they didn't work. That is not uncommon: an analysis of sanctions from 1946 to 2000 shows that they have generally been a lot more effective in destabilizing "personalist" regimes and monarchies than single-party regimes (like Iran) or military regimes. In fact, for the latter, sanctions have at times been counterproductive, reinforcing autocratic regimes[1].

Iran centrifuge growth not affected by sanction misery

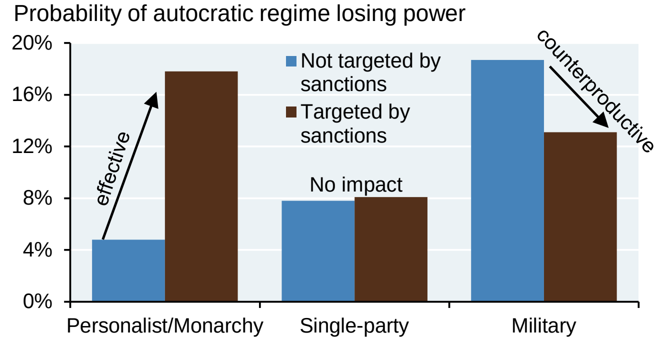
Thousands of centrifuges | Level



Source: Institute for Science and International Security, IMF, Iran Central Bank. Steve Hanke's misery index equation, our calculations. 2014.

Sanctions more successful on Personalist Regimes and Monarchies than on Single-Party or Military Regimes

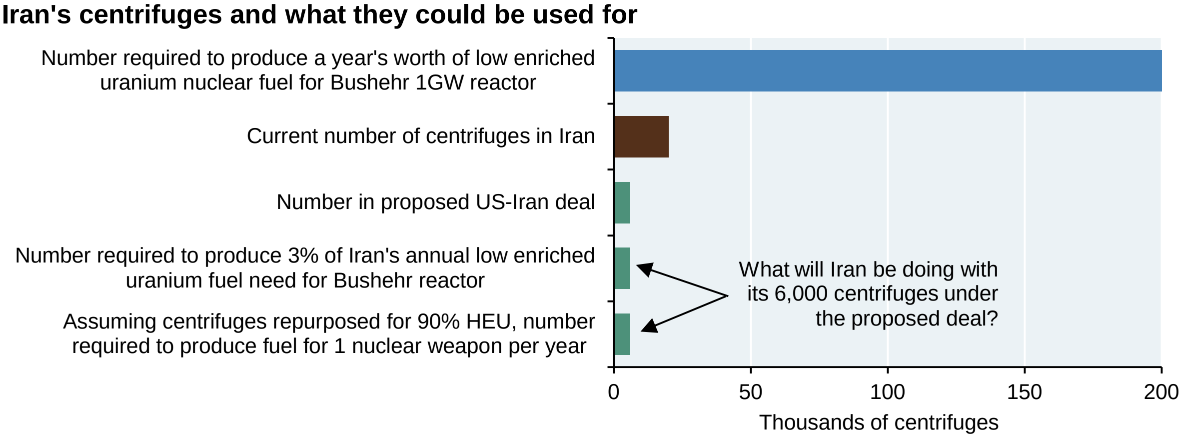
Probability of autocratic regime losing power



Source: "Dealing with Tyranny: International Sanctions and Autocrat Duration", Escriba-Folch, IBEI. April 2008.

However, sanctions might have driven Iran to strike a deal on its nuclear program, the contours of which you have seen in the press. Is it a good deal? **Elder statesmen and experienced negotiators we have spoken with have reservations**. Iran gets most of the carrots upfront (a huge relaxation in economic sanctions), while the benefits for everyone else hinge on Iran's compliance on nuclear enrichment. As background, the nuclear issue is mostly about weapons, and has little to do with Iran's nuclear power sector. As shown, Iran would need 10x its current stock of centrifuges to produce 1 year's fuel for their nuclear plant at Bushehr. However, as stated above, 20,000 is more than enough to produce weapons. The proposed deal cuts Iran's centrifuges to 6,000, an amount that would cover just 3% of its annual nuclear fuel need, or produce enough 90% HEU (highly enriched uranium) to build around 1 bomb per year if the centrifuges were repurposed to do so.

Iran's centrifuges and what they could be used for



Sources: World Nuclear Association, Middlebury Institute for International Studies, NYT, Iran Fact File, our calculations. 2015.

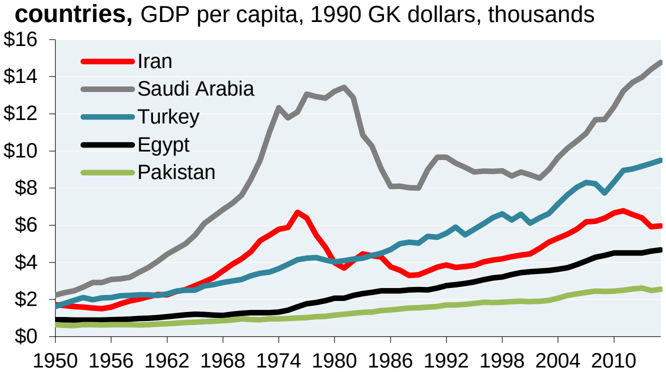
[1] This conforms to other multi-decade studies on sanctions: a 2011 Bern Institute paper cited a 20% success rate for sanctions designed to promote regime change and democratization, and concluded that they sometimes backfire: governments cut services, reduce private sector productivity and reduce resources of potential challengers.

Other things to keep in mind about verification and the long run:

- The deal involves **verification language** that mentions 24-hour security cameras, inspections, who gets to approve inspectors, 24-day delays on disputed inspections and the role China and Russia will play in resolving them, surveillance, soil samples, sanction snapbacks, etc., but in the end, the ability to identify if any centrifuges are being diverted to 90% enrichment, or to identify the construction of any secret centrifuge facilities (as Fordow once was, disclosed more than ten years after its construction began), is harder than verification procedures undertaken in prior eras. After all, we are talking about a material (enriched uranium) whose required concentration for weaponization is only 25 kg, which would easily fit inside a soccer ball.
- **Should Iran violate terms of the deal**, will European sanctions really be reinstated if its banking, insurance, energy, transportation and shipping companies are making money in Iran again? It looks like the sanctions train will leave the station for good.
- **The term of the deal is ten years**. Ten years might seem like a very long time to a US President. Ten years after they leave office, their Presidential libraries are being built and their hard work is done. In Iran, where Persians once ruled uninterrupted for 1,000 years and where Shia emperors ruled for another 500 years, ten years might not seem like a long time to wait in pursuit of a greater ambition.

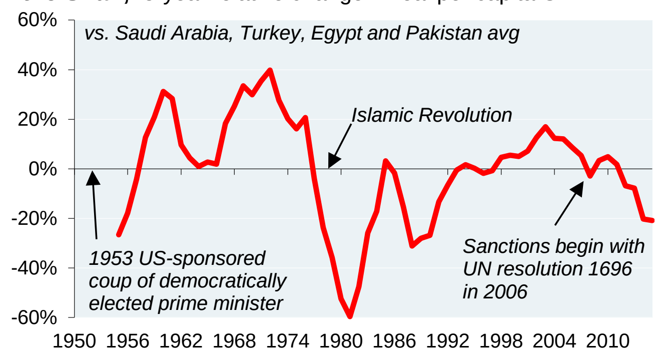
Some additional background on Iran's economy and the impact of sanctions. The charts below provide additional context on the impact of sanctions on Iran. Iran's economy generally outperformed its large regional neighbors from 1955 until the Islamic Revolution in 1979. Iran then suffered a severe economic adjustment in both absolute and relative terms, a function of economic isolation and the Iran-Iraq war. From 1990 to 2010, its economy performed roughly in-line with its neighbors. Then, with the imposition of sanctions, its economy began to suffer again. There are some who prefer to keep sanctions in place and see if their severity could force political changes or unilateral abandonment of the nuclear program. But as stated on the prior page, the history of this strategy is mixed at best.

Iran's economy since 1950 vs other large regional countries, GDP per capita, 1990 GK dollars, thousands



Source: Conference Board. 2015.

Iran's relative performance since 1950: better under the Shah, 5-year relative change in real per capita GDP



Source: Conference Board. 2015.

A League of Their Own. To be clear, life under the Shah was no picnic. Its government employed torture, executions and secret police. The legacy of US involvement in the violent 1953 coup of a democratically elected Iranian prime minister which prolonged the Shah's rule by two decades has been poisonous for the reputation of the US throughout the region ever since. However, the Islamic Republic has by many accounts surpassed the Shah. According to Iranian-born historian Ervand Abrahamian, the Islamic Republic executed more political prisoners than the Shah, dramatically expanded the prison system, and ranks alongside Stalinist Russia, Maoist China and the European Inquisition in terms of the systematic use of torture to produce recantations by political prisoners. On this latter point, "these four can be considered in a league of their own"[2].

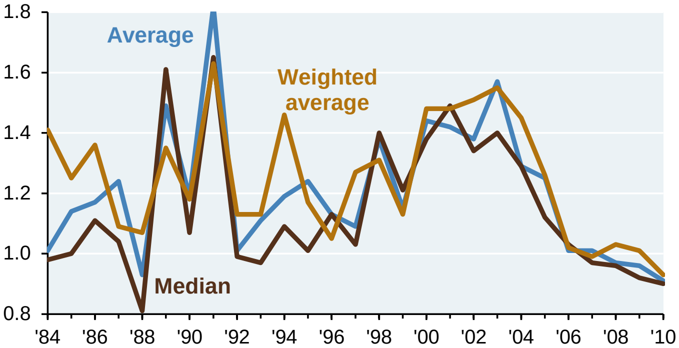
[2] Ervand Abrahamian, "*Tortured Confessions*", University of California Press, 1999, page 5.

A private equity industry update on vintage years 2009 and 2010

Every couple of years, we look at returns[3] across the private equity industry. We last wrote **on private equity returns and related topics** in July 2013. The primary metric of comparison we use is the Public Market Equivalent (PME), which measures private equity performance relative to public equity from the time of the investor's capital contribution. At the time, we noted that since the mid 1980s and since the year 2000, the median US buyout fund had outperformed public markets consistently, both over time, and across different fund sizes; and that the private equity PME was roughly 1.25, which was equivalent to excess returns of 3%-4% per year. We also noted that the median US venture capital fund had been generating returns slightly below public equity markets since its heyday in the late 1990s.

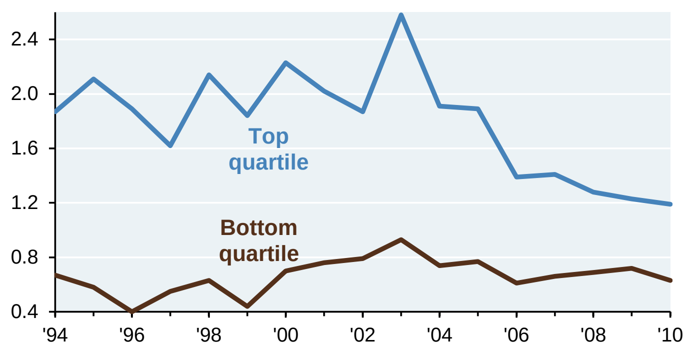
Since that report, data is now available for vintage years 2009 and 2010, with returns on all funds through June 2014. These two private equity vintage years have stiff hurdles ahead of them: since January 2009 and January 2010, the S&P 500 has risen by 160% and 110%. So far, buyout funds from these vintage years are trailing public markets, with PMEs slightly below 1.00. To be clear, only ~20% of buyout investments from these vintages years have been realized; their PMEs are primarily based on valuations rather than distributions, and may change as funds exit investments through IPOs, sales to strategic buyers or other private equity funds. Furthermore, research indicates that residual values tend to be conservative estimates of the ultimate cash returned to investors. Nevertheless, it's useful to start tracking how these vintage years are doing. What's also notable: the performance spread between top and bottom quartile buyout funds has narrowed.

US Buyout/Growth Equity fund PMEs
Public Market Equivalent Ratio, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

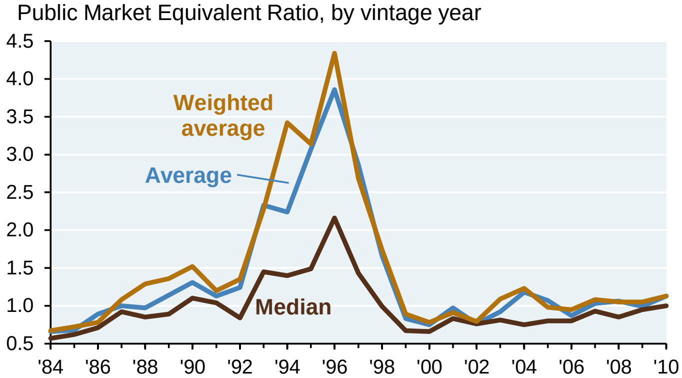
US Buyout/Growth Equity fund PMEs, by quartile
Public Market Equivalent Ratio, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

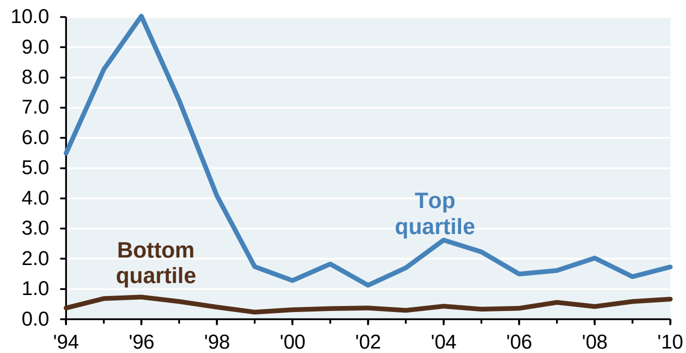
On venture capital, PMEs have finally been creeping back above 1.00, particularly for top quartile funds. The history is distorted by venture capital gains of the late 1990's, which are a distant memory.

US Venture Capital fund PMEs
Public Market Equivalent Ratio, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

US Venture Capital fund PMEs, by quartile
Public Market Equivalent Ratio, by vintage year

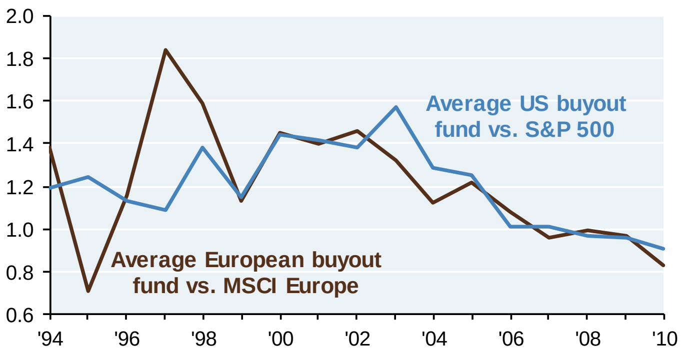


Source: Harris, Jenkinson and Kaplan. June 2015.

[3] Our source is **Steve Kaplan** at the University of Chicago Booth School of Business, who we consider the patron saint of private equity research. His research incorporates improvements in the quality of private equity return data; private equity returns net of all fees are sourced from a proprietary database of over 300 state and corporate pension fund, endowment and foundation limited partner investors in 2,000 private equity funds.

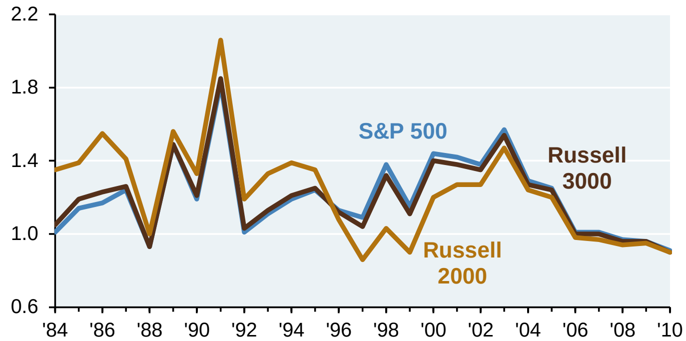
As for Europe, private equity relative performance is similar to the US (see below, left). Sometimes we are asked whether different aggregations or benchmarks would yield different results. As shown on the prior page, PME results are similar whether computing average fund returns, median fund returns, or returns weighted by size of fund. And as shown in the chart (right), results are similar whether using the S&P 500, the Russell 2000 or the Russell 3000 as the public equity benchmark.

Similar performance trends in Europe
Public Market Equivalent Ratio, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

US Buyout/Growth Equity funds: using alternative indices
Average Public Market Equivalent Ratio, by vintage year

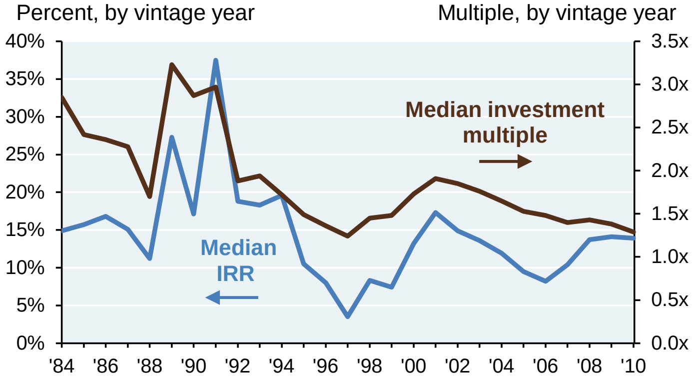


Source: Harris, Jenkinson and Kaplan. June 2015.

The combination of financial repression by the Fed and S&P operating earnings roughly doubling since January 2009 contributed to a robust recovery in the S&P 500. As things stand now, an aggregate of private equity industry returns for vintage years 2009 and 2010 are lagging behind them. However, over the long haul, the private equity industry has generally provided returns over public equities of roughly 3% per year for investors in diversified portfolios of median funds. To round out the history, we show below the internal rate of return (IRR) and multiple of invested capital (MOI) for median buyout and venture funds. In terms of our own platform, we have moved toward sector-focused funds, private credit funds, real estate funds, growth equity funds and venture in the current environment, which is very much a seller's market given ample liquidity and rising purchase multiples in the traditional buyout space.

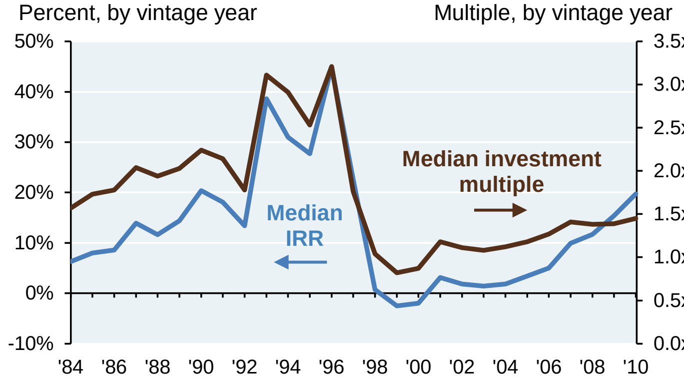
Michael Cembalest
J.P. Morgan Asset Management

US Buyout/Growth Equity funds: median IRR and MOI
Percent, by vintage year | Multiple, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

US Venture Capital funds: median IRR and MOI
Percent, by vintage year | Multiple, by vintage year



Source: Harris, Jenkinson and Kaplan. June 2015.

Primary source
"How Do Private Equity Investments Perform Compared to Public Equity?", Harris (UVA Darden), Jenkinson (Oxford), and Kaplan (Chicago Booth), June 2015; and prior papers published in the *Journal of Finance*

Acronyms
GDP: Gross Domestic Product; **IPO**: Initial Public Offering; **IRR**: Internal rate of return; **M&A**: Mergers and acquisitions; **MOI**: Multiple of invested capital; **P/E**: Price-to-Earnings; **PME**: Public Market Equivalent